

Autothermal Reformer–Reforming Exchanger Arrangement for Hydrogen Production

Abstract

Low-energy, low-capital hydrogen production is disclosed. A reforming exchanger 14 is placed in parallel with an autothermal reformer (ATR) 10 to which are supplied a preheated steam–hydrocarbon mixture. An air–steam mixture is supplied to the burner/mixer of the ATR 10 to obtain a syngas effluent at 650°–1050°C. The effluent from the ATR is used to heat the reforming exchanger, and combined reformer effluent is shift converted and separated into a mixed gas stream and a hydrogen-rich product stream. High capital cost equipment such as steam–methane reformer and air separation plant are not required.